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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/040,376 | 01/09/2002 | Ramon A. Gomez | 1875.0610000 | 4147 |

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| EXAMINER | |
|---|---|
| HAM, SEUNGSOOK | |
| ART UNIT | PAPER NUMBER |
| 2817 | |

DATE MAILED: 05/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/040,376 | GOMEZ ET AL. | |
| | Examiner | Art Unit | |
| | Seungsook Ham | 2817 | |

*-- The MAILING DATE of this communication appears on the c ver sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *15 April 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-12 and 15-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12 and 15-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☒ The proposed drawing correction filed on *15 April 2003* is: a)☒ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

## DETAILED ACTION

### *Claim Objections*

Claim 12 is objected to because of the following informalities:

in claim 12, line 20, "first" should be changed to –third--,

line 22, "second" should be changed to –fourth--. Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-4, 6-10, 12 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Makimoto et al. (US '396) in view of Shen (US '569).

Makimoto et al. (figs. 1 and 8-10) discloses a bandpass filter comprising: a plurality of resonators 13-16, 703-706 that are electromagnetically coupled to each other, each resonator having a terminal coupled to a ground; a bypass line/frequency attenuating means 22, 716 in parallel with the plurality of resonators, the bypass line having a bypass line input 23 coupled to a first resonator of said plurality of resonators and a bypass line output 24 coupled to a second resonator of the plurality of resonators; an input 11, 701 coupled to said first resonator; and an output 12, 702 coupled to the second resonator. Note that first and second portions 908, 909 of bypass line are in-parallel with first and second resonator electrodes 804, 807, respectively.

Makimoto et al. does not show each resonator being a spiral resonator. However, Makimoto et al. teaches that each resonator is comprised of a lump constant or distributed constant type (col. 5, lines 12-14) and can be formed on a single printed circuit board (col. 6, lines 1-8). Moreover, it is well known in the art that a resonator being grounded at one end forms a quarter wavelength transmission line.

Shen (fig. 2A) also discloses a bandpass filter having a plurality of microstrip spiral resonators. It is inherent or obvious that the spiral resonators are quarter wavelength transmission lines to operate as a resonator. Moreover, Shen (fig. 8A) shows the outer segment of a first spiral resonator is coupled with an input line 84 for coupling.

It would have been obvious to one of ordinary skill in the art to use microstrip spiral resonators of Shen as the resonators in the device of Makimoto et al. since microstrip spiral resonators are well known in the art and to minimize the size for the filter device as taught by Shen (see abstract).

Regarding to claim 4, Makimoto et al. (fig. 8) discloses an input capacitor 708 coupled between the input and the first resonator 703; and an output capacitor 712 or 713 coupled between the output put and the second resonator 706.

Regarding to claims 6-9 and 17, Makimoto et al. (figs. 8-10) discloses bypass line input and output couplers 714, 715, a third resonator 704 or 705 and can be formed on a single printed circuit board (col. 6, lines 1-8). It is inherent that the input and output impedance has a desired value.

Regarding to claim 10, Makimoto et al. (fig. 8) also discloses first and second intercouplers 709-711.

Regarding to claim 12, it is obvious as a matter of design choice to provide an additional bandpass filter to form a differential bandpass filter since such design technique is well known in the art (see also Shen, fig. 8A).

Claims 5 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Makimoto et al. (US '396) in view of Shen (US '569) as applied to claim 1-4 and 10 above, and further in view of Zhang et al. (US '394).

The modified device of Makimoto et al. lacks the input and output capacitors are printed finger capacitors. However, such capacitor is well known in the art. Zhang et al. (figs. 3 and 4). Therefore, it would have been obvious to one of ordinary skill in the art to use printed finger capacitors as the capacitors in the modified device of Makimoto et al. since such capacitor is well known in the art as shown by Zhang et al.

Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Makimoto et al. (US '396) in view of Shen (US '569) as applied to claims 1 and 12 above, and further in view of Domino et al. (US '752) or Chan et al. (US '665).

The modified device of Makimoto et al. does not show using the bandpass filter in a double conversion tuner. However, it is well known in the art to use a bandpass filter such as Makimoto et al. or Shen (see also figs. 8A, 9A) in a double conversion tuner. Moreover, Makimoto et al. (figs. 8-10) show a bandpass filter used in a communication device.

Domino et al. (fig. 1) discloses a conventional double conversion tuner having a differential bandpass filter 44. Chan et al. (fig. 1) also discloses a conventional double conversion tuner having a bandpass filter 24.

It would have been obvious to one of ordinary skill in the art to use the modified bandpass filter of Makimoto et al. in a double conversion tuner since it is well known in the art to provide a bandpass filter in a double conversion tuner as shown by Domino et al. or Chan et al. and it only requires a routine skill in the art.

***Response to Arguments***

Applicant's arguments with respect to claims 1-12 and 15-17 have been considered but are moot in view of the new ground(s) of rejection.

In response to the applicant's argument (see REMARKS, filed on 4/15/03, page 11) that none of the references (or their combination) teaches or suggested the bypass line input or the bypass line output described in claim 1, the examiner respectfully disagrees.

Makimoto et al. (fig. 10) shows a bypass line 910 having first and second portions are in-parallel with first and second resonator electrodes 804, 807 (thus, they create capacitive couplings 817, 818, see also fig. 8, elements 714, 715).

Shen (fig. 8A) shows an outer segment of a first spiral resonator is coupled with input line 84 in-parallel (see also the same coupling existed between the last resonator and the output line 87b).

Thus, it is the examiner's position that the outer segment of a spiral resonator of Shen must be placed in parallel with a first portion 908 (and a second portion) in the

device of Makimoto et al. in order to provide proper coupling between the resonator and the bypass line.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seungsook Ham whose telephone number is (703) 308-4090. The examiner can normally be reached on Monday - Thursday from 8:00 A.M. to 5:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert J. Pascal can be reached on (703)308-4909. The fax phone

numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

Seungsook Ham
Primary Examiner
Art Unit 2817

sh
May 5, 2003